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Human Nature 1.0: Teachers as Technology Consumers

Activity 1: In the margins (unless this is your boss' copy), write down one technology (hardware, software, websites) you use on a regular basis at home and one at work. Do the same for one technology you tried but gave up using for whatever reason.

We won't learn a great deal of new material. My hope is for you to become more perceptive of every day school matters many of us take for granted but that can change our schools and the world for the better. A professor used this sentiment as the opening of my school leadership course. I feel the same when it comes to the human nature of teachers regarding technology adoption.

For many of us, teaching and technology use and adoption, in some form, are everyday occurrences in our schools. However, after twelve years I ask with even more intrigue, "what can I do to help teachers sustain the use of technology in their classrooms as tools for instruction and learning?" All the things we wished for back then – and much more - are here now. That is why I come back to human nature, and not necessarily the technology, as shedding some light on this question.

It wasn't until I came across *The Change Function* and later read Pew's *Typology of Technology Use* survey did I come to this conclusion: Teachers are consumers of technology in the

classroom just the same as if they are walking down the aisles of a big box technology retailer. In either the classroom or in their lives, teachers have a choice whether to use technology, to what extent, and how to use it. 8% of teachers will deeply use technology look and 49% will use it occasionally and bristle and it use according to Pew's research findings¹. Approaching teachers as consumers, in addition to our enthusiasm, we can focus not only what teachers "buy" but also *why* and *how* they "buy" the technology. While this may seem commonsensical to some, I think it can help us to understand why, with all else being equal, one teacher dives in to adopt a wiki as a classroom tool but the teacher next door does not.

In *The Change Function*, author Pip Coburn lays out a well reasoned argument that consumers will consider new technology only if the current pain of not having the technology is higher than their Total Perceived Pain of Adoption (TPPA) of adopting the new technology². Should their TPPA be higher than the current pain, consumers won't use those products. I believe this equation can be applied to teachers' use of technology since they are ultimately consumers of technology and are subject to human nature. Teachers are more likely to adopt technology when their current pain is greater than their TPPA.

What is current pain to a teacher and what does TPPA look like to them? Current pain can be defined in the same way as Coburn defines it - *need*. I believe teachers' TPPA is influenced in five main ways: *infrastructure*, *training/time*, *technology-teaching compatibility*, *complexity*, and *failure*. As a complete equation, teachers will be more likely to adopt technology for use in their classrooms if *need* is greater than the TPPA of *infrastructure*, *inservicing*, *teaching-*

technology compatibility, complexity, and failure. Evaluating current pain of teachers and developing strategies for reducing TPPA is a first step.

Activity 2: In the margins (unless this is your colleague's copy), write down two situations where you or teachers didn't adopt technology you were originally enthusiastic about?

Current Pain (and Need)

What compels a teacher so much to motivate them to pick up a mouse and use technology as an instructional or learning tool? Coburn's answer to this is *current user pain*. That is, a teacher is having such a problem (pain) with teaching a skill, standard (NETS or otherwise), or objective they leverage technology as a solution.

Pain has a great deal to do with perception. Perception in this case is how a teacher perceives technology's role as an instructional and learning tool. Also, teacher's perception of their most effective teaching style is important. These perceptions are guided by teachers' values and beliefs.³

A compelling example of pain is technology's second fiddle role to teaching "the basics". Depending on your perception, there are four choices: (1) technology is an essential skill to learn, (2) technology is an essential tool for learning any subject area, (3) technology is an important skill to learn and an essential learning tool for any subject area or (4) technology is not a viable tool at all in learning the basics. The teacher in choice three will adopt technology in a

markedly different way than the teacher in the fourth choice due in large part to their perception of technology as an effective tool.

Activity 3: In the margins (unless this a library copy), write down two sources of pain you had adopting the technology you gave up using in Activity 1? Was your TPPA higher than your current pain? How about for the technology that you currently use, was your current pain higher than the TPPA?

Total Perceived Pain of Adoption Influencers

Total Perceived Pain of Adoption (TPPA), like current pain, should be considered from the teacher's perspective in accordance with their values and beliefs. Pain from a teacher's perspective is most crucial for technology adoption since it is them who will be doing the adopting. An attractive aspect to Coburn's *Change Function* is that it can be adapted to fit site-specific situations often found in individual schools, buildings, or even with faculty. I have listed five broad five areas that I believe are more universal in nature.

1. TPPA Influencer: Infrastructure

So much potential instruction and learning is riding on our schools' networks, hardware, and software. Fortunately, this is one of the most tangible and easy to change TPPA influencers.

Discovery Education's unitedstreaming.com website is a good example. It is easy to use and content rich site that has all the makings of a great Web 2.0 tool for 21st century learning and differentiating instruction. But if a teacher finds the video clips don't load quickly enough due to

infrastructure limitations or oversubscription, the teacher's TPPA is likely to be high. In this case, UnitedStreaming has a good chance of being not used at all or to its fullest potential because the current pain of not using it isn't high enough to adopt it

Interestingly, this situation is a classic setup for throwing the proverbial baby out with the bath water. Even though it's the network that's causing the poor quality, the tool (UnitedStreaming) gets the bad rap.

2. TPPA Influencer: Teaching and Technology Compatibility

A few years ago I provided an inservice on Kidspiration and Inspiration visual mapping software. After the session, I learned despite my enthusiasm for the software teachers were not likely to adopt it. Their teaching styles and software were incompatible.³

From my experiences, teachers using more traditional teaching styles such as teacher-delivered instruction tend to gravitate towards drill and practice technology. Teachers who use a more student-centered approach will be more likely to use technology that allows students to build their own knowledge (visual mapping, Internet). It makes sense that, as a technology consumer, a teacher's TPPA will be high with the prospects of using software that doesn't match their teaching style. Changing a teaching style means a change in how they view education. And that can be a tough nut to crack especially if TPPA runs high or if the perception of technology is not viewed as crucial to learning or instruction.

For example, let's use a simple web page projected via an LCD to a whole class. The teacher either could ask the students to read the web page and then answer pre-written questions (teacher-led). The web page could be also presented with the goal of students writing a story or mock interview based on the content (more constructivist) of the web page. It's the same technology but delivered differently accommodating different teaching styles. Wikis and blogs are another great example. It's simply an amazing technology but only for those teachers who feel comfortable delivering instruction interactively in a "non-traditional" format.⁵ With teachers as consumers, technology that doesn't fit with a teaching style will raise TPPA and likely remain on the shelf. An alternative to purely technical inservices is to explore teaching strategies for using the tool.

3. TPPA Influencer: Inservicing

For a teacher to use technology as an instructional tool, assimilation must occur between the technical tool and the content. Whether the instruction is teacher-driven (using a laptop, LCD, and whiteboard) or given as a whole group on classroom laptops or in a computer lab, a classroom teacher teaches not just content but often the technology too. That is quite a bit of responsibility given the variables that can go wrong, the questions that could be asked, or the TPPA influencers of complexity, infrastructure, or failure. Without proper inservicing and support, a teacher's TPPA is certain to be much higher than their current pain. Adding a dose of teaching and technology incompatibility, TPPA could be even higher.

Nine hours of training is considered the most effective duration of training⁴. It is hard to provide nine hours of pure inservicing training in our busy schedules. I have found a great

solution is to provide realistic training times and then coaching beyond the formal training in the context of adopting the technology in a classroom setting. This is a great opportunity to address compatibility issues between the teaching style and the technology.

Revisiting the Pew study, a 69% population of teachers are considered low to mid levels technology users. Our expectations and approach to inservicing should take into account our teacher's levels. A measure of my training effectiveness is a teacher feeling comfortable enough to pick up the mouse and deliver instruction and facilitate learning through a technological tool.

4. TPPA Influencer: Complexity

“People don’t want quarter-inch drill bits, they want quarter-inch holes”, quotes Pip Coburn in *The Change Function*. Likewise, for teachers, it’s hard to want to adopt technology whose primary focus is always on the technical grit due to complexity and not the product of learning.

Complexity is a funny animal since I believe it’s based in part on perception. The complexity of the technology usually can’t be changed easily. Usually, however, the perception of complexity can.

The “real” complexity of technology comes from the technology itself. Hard to navigate menus, un-intuitive interfaces, unforgiving error messages, or software instability are examples of complexity. Unless an alternative is sought, this is hard to change until either enough users complain or the technology goes away – another of Coburn’s themes.

Where the perception of technology can be seen as complex is in some TPPA areas we've discussed: *technology-teaching similarity*, *inservicing*, and *infrastructure*. Technology that doesn't coincide with a teaching style can appear complex since we have to adapt our teaching. The way in which we train teachers can make technology look complex. Finally, a poor infrastructure can add both perceived and real complexity to even the most simplistic application as we saw in the infrastructure section. Complexity of those aspects of technology that we can't change (real) and those we can change but don't can certainly raise a teacher's TPPA.

People not only buy, but more importantly love, designs that make their lives simpler. Think of how popular the iPod and Google are because of their simplicity.⁶ What may be interesting to us technology-geeks is more work to a non-technologist. From experience, one of the quickest ways to turn a teacher off to technology is to introduce a complex application or show complexity during the introduction via the inservicing approach, teaching methods, or not having adequate infrastructure. Teachers as consumers are no different - complexity can set a teacher's TPPA off the charts. We usually don't have control over the "real" complexity of technology but we do over *technology-teaching similarity*, *inservicing*, and *infrastructure*.

5. TPPA Influencer: Failure

While it is hard to completely reduce failure, the perceptions of failure can be reduced. We teachers are great risk assessors. We learn through the school of hard knocks how to mitigate risk when it comes to technology. For many teachers, TPPA is failure of technology not working as planned. Compare technology to textbooks. When was the last time a textbook or workbook failed?

From my experiences, teachers feel lack of technical know-how can equal impending failure. Feeling comfort in front of students is important for teachers; not understanding technology can reduce our need for it. Providing training, coaching, and just-in-time support can help this perception of failure. As consumers, teachers are right not to want to buy into technology that has a high likelihood of failure. *Consumer Reports*, www.tripadvisor.com, and even the reviews on www.amazon.com are great examples of tools that help consumers reduce failure.

All of the other TPPA influencers have to almost not exist to tackle failure. That is, complexity should be kept low, infrastructure working efficiently, and inservicing/coaching made available. An educational technology leader can work to provide enough training/support, select less complex applications, and ensure the infrastructure can deliver technology without problems.

Activity 4: In the margins (unless you are reading this on www.iste.org), write down two TPPA influencers that you believe impacted (a) your decision not to use the technology and (b) your teacher's decision to not adopt the technology.

Concluding Thoughts

Taking a step back to look at our teachers as humans and viewing their choices of technology adoption can go a long way towards better understanding sustainable technology adoption. This look into pain, perception, every day occurrences, can help to ensure we as my professor stated, “to change education and the world for the better”. Hopefully these activities and words can help

but have not got you into trouble for writing in some else's copy of L&L. Please feel free to contact me with your results.

References

1. John B. Horrigan, "A Typology of Information and Communication Users", Pew Internet & American Life Project, May 7, 2007.
2. Pip Coburn, *The Change Function* (New York: Penguin, 2006).
3. Tamar Levin, Rivka Wadmany, "Teachers' Beliefs and Practices in Technology-based Classrooms: A Developmental View", *Journal of Research on Technology in Education*, vol 39, 2006, pp 157 – 181.
4. William R. Penuel, "Implementation and Effects Of One-to-One Computing Initiatives: A Research Synthesis", *Journal of Research on Technology in Education*, vol. 38, 2006, pp. 329 – 348.
5. Very helpful resources in learning about how wikis and blogs can be used in our classrooms, visit: <http://www.supportblogging.com>, <http://www.classroom20.com>, or <http://usmsummer2007.wikispaces.com/>
6. John Maeda, *Laws of Simplicity (Simplicity: Design, Technology, Business, Life)*, (Cambridge, MA: MIT Press, 2007).